

THE DENTAL PRACTITIONER

A monthly journal for the Practitioner and his Staff

VOL. II, NO. 4

DECEMBER, 1951

[*Incorporating the Official Supplement of*
The Dental Laboratories Section of the Surgical Instrument Manufacturers Association]

UNIVERSITY
OF MICHIGAN

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THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

*(Incorporating the Proceedings of the British Society of Periodontology
and the Official Supplement of the S.I.M.A.—Dental Laboratories Section)*

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VOL. II, No. 4

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CONTRIBUTIONS should be sent to the Editor, *The Dental Practitioner*, 42/44 Triangle West, Bristol 8. Original articles are accepted on the understanding that they are contributed solely to this Journal.

Manuscript should preferably be typewritten with double spacing and wide margins, and the author should keep a copy. Articles and their illustrations become the property of *The Dental Practitioner*, unless authors reserve the right before publication.

Illustrations should be clearly numbered and legends should be written on a separate sheet of paper and not put on the backs of the originals. Each figure should be referred to in the text. Prints are preferred to X-ray negatives and should be on glossy paper. Lettering which is to appear on illustrations is best shown on an overlay or rough sketch. It should not be put on the original.

Tables should be typed on separate pages and each should have a caption which will explain the data without reference to the text.

References to dental literature should be recorded in the text, with the name of the author and the year of publication in parentheses. In the bibliography they should be arranged in alphabetical order in the following form, the abbreviations of periodicals being those adopted in the *World List of Scientific Periodicals*, e.g. :—

SMITH, J. A. K. (1949), *Brit. dent. J.*, **86**, 271.

LEWIS, R. W. B. (1947), *The Jaws and Teeth*, 2nd ed., 471. London : Science Publishing Co.

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THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

Vol. II, No. 4



December, 1951

EDITORIAL

BACK TO NORMAL

(BUT OVER THE BORDER)

THIS December number of our journal brings us once again "back to normal", after digressions into the academic side of our profession and our reporters' accounts of the interesting items seen at the Dental Trade Exhibition.

This number, so typical of the DENTAL PRACTITIONER, is the result in great part of the efforts of the staff of Dundee Dental School, University of St. Andrews, and to them go our thanks and our congratulations. Once again one of our teaching schools has added its name and the names of members of its staff to the not inconsequential list of such establishments and well-known members of our profession whose articles have graced these pages.



THE BRITISH SOCIETY OF PERIODONTOLOGY

The Third Session of this Society commenced on October 19, 1951, and in the *Proceedings* published in this number is the Presidential Address given by Mr. S. Cripps, L.D.S. May we be presumptuous enough to recommend to you all the careful study of this speech? It is both intensely interesting and instructive, and we wish on your behalf to offer our

congratulations to its author on the excellence of his address and also on his eminent position as President of the Society.



NO STOP PRESS NECESSARY!

The Editors and Publishers take this opportunity of wishing every one of you a very happy Christmas, which we trust will be spent in excellent company wherever you may be—on land, sea, in the air, at home, or overseas.

PREVIEW

No. 5 JANUARY

Special R.A.F. Dental Branch Number

- Foreword *Air Commodore G. A. Ballantyne, C.B.E., D.F.C.*
Some Considerations in the Treatment of the Third Molar *Wing Commander W. O. Baird, M.B.E.*
Some Observations on Full Denture Technique associated with Difficult Cases *Wing Commander K. G. Sharvill*
Mobile Dental Surgeries *Air Commodore G. A. Ballantyne*
Training in the Dental Branch of the Royal Air Force *Wing Commander R. Scoggins*
The Work of the Dental Hygienist *Squadron Leader G. W. Cloutman*

THE IMPACTED MAXILLARY CANINE

By A. D. HITCHIN, M.D.S, F.D.S. R.C.S.E.

Professor of Dental Surgery, University of St. Andrews

DEVELOPING, as it does, high above the maxillary arch, and since its date of eruption is late in comparison with that of the other upper anterior teeth, the permanent maxillary canine not infrequently becomes impacted. Inadequate development in size of the arch is an obvious predisposing cause, the aetiology of which is often complex and is the concern of our orthodontic colleagues. If the former occurs, the permanent upper canine, as it descends from its site of development, and because of the form of its crown and the conical shape of the incisor roots, is often deflected from its normal path of eruption; and whilst in many cases this merely leads to a malplaced erupted tooth, in others impaction occurs.

The canine may be deflected palatally or labially with most frequently an anterior inclination. The latter is presumably due partially to the two-rooted character of the first maxillary premolar acting as a barrier to posterior deflection, and partly to the forward growth of the maxilla.

When the canine is deflected from its normal course by the apices of the incisors, its epithelial sheath of Hertwig trailing behind continues to stimulate root formation, which therefore tends to be in the direction of normal eruption. Because of this, the apices of impacted maxillary canines have usually a more or less marked curvature, the direction of which can usually be determined once the position of the impacted tooth is known, even though the former may not be apparent in the radiographs. This has an obvious application in operative technique.

SYMPTOMATOLOGY

The absence of a maxillary canine from the arch, with no history of its extraction, usually means, after the age of 12 years, its impaction.

Pain is uncommon in comparison with the frequency of the condition; but may occur

over the infra-orbital area of the affected side. Pressure from the impaction, however, on the tooth or teeth impacting the canine, may lead to periodontitis of these teeth, which is usually chronic in character. Parodontal pain, dull and constant in nature, may occur and be felt in the teeth involved. In the long-standing case the roots of these teeth may become absorbed and possibly loose.

CLINICAL FINDINGS

On clinical examination a hard, rounded swelling over the crown may or may not be palpable, whilst there may be associated soreness or tenderness. Pyogenic infection with ensuing inflammatory symptoms may occur; but pericoronitis is comparatively rare, though it must be borne in mind in differential diagnosis.

The presence of a follicular cyst, particularly a small one, is not uncommon, and may lead to parodontal denudement of part of the root of a standing tooth, which may influence both treatment and the prognosis of the latter. Rarely a globulo-maxillary cyst may be coincident and complicate differential diagnosis—a complication which is more academic than one seriously influencing operative technique and treatment.

DIAGNOSIS

Diagnosis does not merely consist in placing a case in a pigeon-hole marked right or left impacted maxillary canine. It involves the accurate localization of the impacted tooth in spatial relationship to fixed points visible clinically and an assessment of possible parodontal damage of the roots of standing teeth. An accurate diagnosis of this nature is a prerequisite to correct treatment, and the prognosis of the other teeth also depends upon it.

The presence of a hard, rounded swelling may give definite information regarding the palatal or labial position of an impacted

maxillary canine, and tilting of the maxillary incisors, particularly when in a palatal or labial direction, may be an important observation.

Clinical examination alone, however, cannot give all the information required and resort

to a radiograph is necessary. Accuracy of detail of the shadow of the apex of the impacted canine is, therefore, often absent.

To demonstrate the palato-labial relationship of an impacted canine to the incisor roots requires an occlusal film; but an anterior occlusal



Fig. 1.—Lateral intra-oral view in a case of Type 4 impaction.

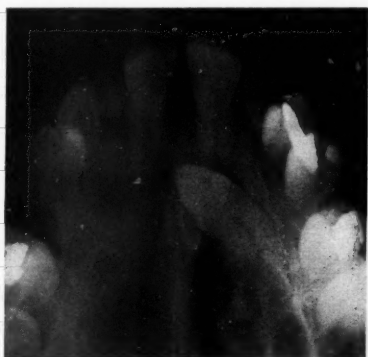


Fig. 2.—Anterior occlusal view, same case.



Fig. 3.—Vertex occlusal view, same case.

must be made to radiography. Nevertheless, the latter is not a substitute for the former, which should be done first and the information noted; for it is difficult to make an objective clinical examination after radiographs have been examined.

RADIOGRAPHIC TECHNIQUE

The localization of a buried tooth by radiographic means is dependent on the presence of fixed points apparent both visibly and radiographically. In the examination of a case of impacted upper canine, the standing teeth provide these fixed points. One radiograph, being a shadowgraph, can only supply information regarding position in two planes, and a second radiograph taken nearly at right angles to the first is necessary to supply the localization in the third dimension.

The ordinary lateral intra-oral view of the maxillary canine region gives a great deal of information (Fig. 1); but it does not demonstrate the palato-labial relationship of the impacted tooth and also often fails to demonstrate a curvature of its apex, because the beam has to be directed at right angles to the plane bisecting the angle between the film and the

view will not supply the accurate information needed (Fig. 2). A vertex occlusal view is necessary (Fig. 3), for labially and palatally

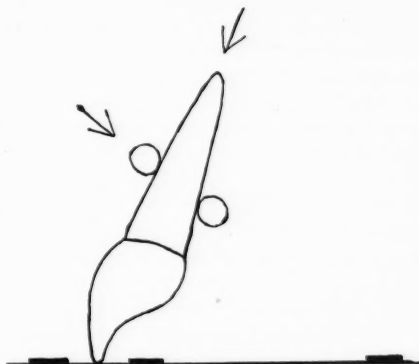


Fig. 4.—Diagram showing similar shadow cast by different bodies when beam is directed to give an anterior occlusal view and different shadows when directed for a vertex occlusal view.

placed bodies may throw similar shadows in anterior occlusal views (Fig. 4). The objective should be to direct the beam along the long axes of the incisor teeth and not to produce a

plan of the occlusal plane of the maxillary arch, for the impacted tooth is situated some distance above it. Furthermore, if such a true plan is taken in a vertex occlusal film, then the edge-on shadow of the frontal bone may be projected on to the same part of the film as the pre-maxillary region masking the position of the impacted tooth. The incisor roots are not at right angles to the occlusal film and in practice it pays to err, if anything, on the side of a greater acuteness of angle to avoid the superimposition of the shadow of the frontal bone.

An intra-oral cassette with intensifying screens must be used, so that exposure may be brought within reasonable limits. The aluminium intra-oral cassette is preferable to the bakelite type, because the latter, if handled carelessly in the darkroom by an assistant, may easily be cracked.

Vertex occlusal films rarely if ever supply detail (Fig. 3) and are often condemned by the uninitiated because of this. Radiographs are, however, required not to produce pretty pictures, but to supply accurate information; and other methods such as stereoscopy and the method of parallax fall behind the above procedure in this respect.

In interpreting the vertex occlusal view, it is wise to take into account any labio-palatal tilting of individual teeth apparent clinically; for sometimes an impacted canine may be within the arch and an incisor so tilted that its root lies palatally or labially to the impacted tooth.

CLASSIFICATION

It is convenient on this basis to classify impacted maxillary canines according to their position as follows:—

1. Palatal near gingival margins.
2. Palatal away from gingival margins.
3. Labial.
4. Crown palatal and apex buccal or above buccal roots of the first premolar.
5. Rare impactions.

TREATMENT

It is possible in certain cases to bring an impacted canine into good position, if room in the arch can be created by expansion or extraction; though these cases are not common, and

considerable judgement, based on experience, is required to decide which are suitable cases. The age of the patient considerably influences the prognosis in this respect; a still open apex of the canine is a favourable feature, but a curved apex is an obvious complication. Room having been created by the orthodontist, it is a simple matter for the oral surgeon to open over the impacted canine and to drill a small hole, in which a small hook can be inserted. The wound may be kept open by means of packs until epithelialization has occurred and the orthodontist can then apply traction to the impacted tooth.

Very much more commonly, however, the surgical removal of the impacted canine is the treatment of choice, which may be done either under local or endotracheal general anaesthesia, though the author usually prefers the latter. Operative technique obviously varies with the type of impaction, as follows:—

Type 1 (Palatal near gingival margins).—The incision is made from the region of the incisive papilla, following the gingival margins around the standing teeth on that side to the neck of the first molar. After reflecting the flap formed, the impacted canine is uncovered by the removal of the bone and gentle elevation attempted. If, however, as often occurs in horizontal cases, resistance is met, it is usually due to the curved apex, which lies in the direction of the normal eruption of the tooth. This prevents the movement of the crown downwards. If the latter is now amputated, it is possible to elevate the root into the space produced. With the more vertically placed Type 1 impaction this is not necessary. After the usual toilet of the cavity, the wound may be sutured, bringing the suture through an interspace and tying on the labial side.

Type 2 (Palatal away from the gingival margins).—The same technique as that used for Type 1 may be used; but many prefer to use an incision curving from the region of the incisive papilla to a point about a quarter of an inch from the neck of the first molar, avoiding the gingival margins.

Type 3 (Labial).—In these cases the inclination of the impacted canine may vary considerably and it is important to so design the flap

or flaps that they not only have a broad base, but also so that their edges will, as far as possible on closure, rest on bone and not on a cavity filled with blood-clot. The uncovering of the tooth and elevation present no special difficulties, but the direction of the latter can usually be determined when the direction of the curvature of the apex is considered.

Type 4 (Crown palatal and apex above or buccal to the apices of the first premolar) (Figs. 1-3).—In these cases the apex of the impacted canine is often in extremely close relationship to the maxillary antrum. The operative technique used may be similar to that employed in Type 1 impactions; but it is preferable, after having exposed the tooth palatally, to make a buccal incision, as if for a buccal apicectomy of the first premolar. After exposing the apex, which is almost always curved in these cases, it is amputated through the buccal incision and removed. It is then a simple matter to push the crown through palatally.

Care must be taken to avoid damage to the apices of the first premolar or to its blood-supply; but this procedure, if properly

planned, often both reduces operation time and obviates the risk of a broken apex in close proximity to the antrum.

Type 5 (Rare impactions).—Operation in these cases must be individually planned, bearing in mind first principles and each case treated on its merits.

In bilateral cases of Types 1, 2, and 4, it is convenient to make both right and left palatal incisions at the commencement of operation and then to reflect the whole anterior part of the palatal mucosa backwards. Excellent access is thereby obtained.

CONCLUSION

A properly planned operation for the surgical removal of an impacted maxillary canine, if based on accurate diagnosis and executed gently and methodically, should cause little if any post-operative discomfort to the patient and rarely any sequelæ. In this respect, it is one of the most successful oral surgical procedures; but if these principles are not followed, damage to neighbouring teeth may easily occur and difficulties arise which are trying to all.

NATIONAL HEALTH SERVICE NOTES

General Dental Services

REVISED DENTAL ESTIMATE FORM

The revised dental estimate form (E.C. 17), brought into use on Dec. 1, 1951, supersedes old form E.C. 17, and forms E.C. 17A and E.C. 55.

The new form can be used, modified as indicated, for repairs of dentures at a scale cost not exceeding 35s. per denture, and the following items of emergency treatment:—
(a) not more than two extractions; (b) the administration of a general anæsthetic; (c) the dressing of a tooth; (d) arrest of bleeding; (e) domiciliary visits in connexion with (a)–(d).

AMENDMENT REGULATIONS, 1951

In addition to providing for the new form and the discontinuance of the use of forms E.C. 17A and E.C. 55, the Regulations contain the following provisions:—

a. They permit a dentist (if necessary, by an arrangement made after the event) to employ

a doctor in emergency to give treatment for the arrest of bleeding to a patient who was being treated by the dentist under the General Dental Services. The medical profession have been advised that they may now claim a fee for such treatment from the dentists, who in turn will be able to claim the appropriate scale fee on form E.C. 17 in the usual way.

b. They alter the conditions attached to the payment of a fee for examination of and report on a person aged under 21, so that not more than one payment may be claimed and made in respect of an examination carried out during each of the three four-monthly periods March to June inclusive, July to October inclusive, and November to February inclusive.

c. They make a number of additions to the list of drugs which a dentist may prescribe.

d. They clarify an ambiguity in regard to the time limit for completing treatment including extractions and the provision of dentures.

CLASS 4 INLAY CAVITY PREPARATION FOR UPPER INCISORS

By JOHN M. FAIRLEY, L.D.S., B.D.S.

Lecturer in Operative Dental Surgery, University of St. Andrews

CAVITY preparation is defined as the mechanical treatment of dental caries and other diseases and injuries of the hard tissues of the teeth, as will best fit the remaining part of the tooth to receive a restoration to its original

full appreciation of the individual parts of the structural lay-out designed to meet the separate principles involved.

The cavity favoured (*Fig. 1*) is based on that described by Parfitt and Herbert (1943). It has a main cavity consisting of two walls:—(a) axial; (b) gingival; and, in addition, a lingual dovetail.

The axial wall of the cavity is completely flat, except at the labio-gingival, where it sweeps around to blend with the gingival wall. The gingival wall is flat over the lingual two-thirds, the labial one-third rising to the axial. There is a sharp line-angle between these two walls at the lingual two-thirds of their junction, and a well-defined angle where they meet the lingual surface of the tooth.

The dovetail on the lingual is of even depth, the base being parallel to the surface of the



Fig. 1.—Class IV cavity prepared to receive gold inlay restoration.

form, give it strength, and prevent recurrence of decay in the same surface.

In the preparation of an upper incisor tooth to receive a gold inlay restoring an approximal surface, including the incisal angle, it is doubtful if the "order of procedure" proposed by G. V. Black (1908) should be followed as such. The completed cavity, however, must conform to the principles involved in the various forms mentioned. The technical routine to be employed must be properly ordered, and so designed as to produce the required result with the minimum discomfort to the patient and effort to the operator, and in addition, in the shortest possible time. That being so, it is essential that a clear picture of the ideal Class 4 cavity for upper teeth be kept in mind, with

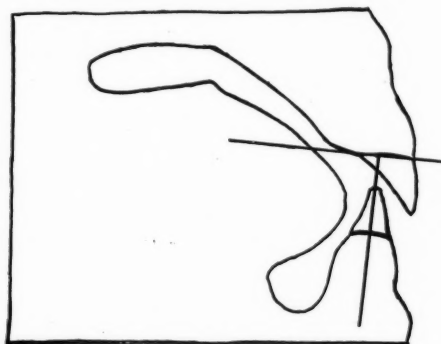


Fig. 2.—Diagram showing angulation of gingival wall to line of stress.

tooth. It will vary in extent, depending upon the amount of tooth structure to be restored.

In the following assessment of this cavity in relation to Black's principles, these features will be more fully discussed.

Outline Form.—All unsupported enamel has been removed and the cavo-surface angle

carried to "safe" areas. Contact with the adjacent tooth has been eliminated.

Resistance and Retention Form.—

a. Resistance to the stresses of mastication is obtained primarily by cutting the gingival wall, as nearly as possible, perpendicular to the line of stress (Fig. 2). The angle of this wall will vary and be dependent upon the extent of overbite and overjet. It must, however, extend labio-lingually over the widest part of the tooth, in order to give the maximum seat to the inlay.

The axial wall is cut in such a way that it inclines to the sagittal plane of the tooth lingually. This brings the gingival seat around nearer the cingulum area of the tooth, giving the maximum area for resistance. It also aids retention by ensuring that the stresses of mastication are tending to force the restoration into the cavity.

b. Retention.—This is given by the lingual dovetail, which will vary in size with the restoration to be supported. Where there is a well-defined cingulum pit, it should be incorporated in the dovetail.

Convenience Form.—Under this heading can be placed the blending of the labial one-third of the gingival wall up into the axial wall, in order to achieve a gentle æsthetic curve for the restoration, presenting on the labial surface of the tooth.

Finishing Enamel Walls.—Withdrawal of the wax pattern and insertion of the completed casting is not directly lingual, but along the line of the walls of the lingual key (Fig. 3). By using this angle, that portion of the gingival cavo-surface angle lying labial to the widest part of the tooth can also be given a bevel. The incisal angle is protected by a definite facet.

TECHNIQUE OF CAVITY PREPARATION

The teeth will have been properly scaled and cleaned at a previous visit and it will only be necessary to ensure that there has been no further deposit in the area involved.

Stage 1. Removal of the Incisal Angle.—A straight chisel is used in a palm grasp, the thumb resting on the incisal edges of the incisor teeth. It is normally possible not only

to remove the incisal angle in this way, but also tentatively to cut the labial cavo-surface angle, curving towards the approximal gingivally. Apart from chipping back undermined enamel, no attempt is yet made to define the cavity lingually.

Stage 2. Excision of Caries and Replacement by Cement.—It is a matter of choice whether



Fig. 3.—Photograph taken in line of withdrawal of wax pattern.

this be done now, or later, after the main cavity has been prepared.

Stage 3. The Use of the Diamond Disk.—The removal of the incisal angle (Stage 1) has given adequate access for the application of the disk. The disk is held in the straight handpiece and introduced from the lingual, the mandrel head being well to the lingual of the incisal edge (Fig. 4). It is used edge-cutting in the first place, to prepare the lingual two-thirds of the gingival wall and to define the point-angle formed by the meeting of the axial and gingival walls on the lingual surface. The flat surface of the disk is not applied to the tooth. Application of the disk in this way ensures the provision of the flat lingual two-thirds of the gingival wall, while in no way interfering with the æsthetic curve of the labial cavo-surface angle. Fig. 5 will show how the lingual approach assists in the correct angulation of the gingival wall.

When this stage has been completed, the disk is moved labially and to the incisal with a gentle stroking action, blending the labial



Fig. 4.—Application of diamond disk.

one-third of the gingival wall up into the axial wall. At the same time any irregularities left in the axial wall are smoothed over.

Before removing the disk from the handpiece, the facet is cut on the incisal angle, at



Fig. 5.—Diagram showing relationship of cutting edge of disk to axio-gingival line-angle.

the expense of the lingual surface. This facet should barely show from the labial.

Stage 4. Preparation of the Lingual Dovetail.—The enamel is penetrated about the middle of the remaining lingual surface, using a contra-angled handpiece with a small rose-head or inverted-cone bur. Dentine is reached and entered. A No. 4 or 5 inverted-cone bur is then used to extend the cavity into the form

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of an oval or D-shaped box. The use of the inverted cone facilitates the cutting of the box to an even depth into dentine. This cavity should not be carried too near the incisal, but should be extended to include the cingulum pit where present.

A large fissure bur is next used to flatten the base and square up the walls. This done, the same bur is used to cut out from the box through the intervening tooth structure, to link up with the main cavity. "Running" of the bur can be avoided by working in two stages. With the cavity on the right side of the tooth the first cut is made through the incisal part of the intervening structure, widening the neck of the dovetail later, by



Fig. 6.—Completed wax pattern before attachment of sprue-former.

trimming along the gingival portion. With the cavity on the left side of the tooth, the first cut is made at the gingival, and the neck widened incisally. In each case, the extension is made by cutting against the run of the bur. Cavity margins on the lingual surface are finally bevelled with stones, and the gingival cavity margin with margin trimmers.

Best results are obtained by the direct impression technique, a wax pattern being constructed in the mouth with the aid of a celluloid strip (Fig. 6).

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PARFITT, J. B., and HERBERT, W. E. (1943), *Operative Dental Surgery*. London, Edward Arnold & Co.

ORTHODONTICS FOR THE DENTAL PRACTITIONER

By DONALD MUNRO, L.D.S. R.F.P.S.

Lecturer in Orthodontics, University of St. Andrews

EARLY on in the present Health Scheme, in spite of many promises by the Minister of Health, certain of the priority classes had to wait until a surprising number of edentulous old people and those who had been wearing ill-fitting dentures for twenty years were fitted up with a new ten-guinea plastic smile. At this stage I should like to point out that we must now face an even greater amount of work for young children who are waiting for our services so that they too can smile.

The report in the *British Dental Journal* (Jan. 6, 1950) of a survey made by Professor Humphreys and Leighton, of Birmingham, on anteroposterior abnormalities of the jaws in children between the ages of 2 and 5½ years, reveals the fact that out of 3380 children inspected by them over 25 per cent had post-normality and 1.6 per cent had pre-normality. Their findings have been endorsed by other workers. These figures do not take into account those cases where jaw relationship is normal but have faulty alinement of one or more teeth, and several other types of malocclusion. It may be agreed that not all of these children would desire orthodontic treatment, but if we accept the low estimate of 10 per cent of children wishing to avail themselves of such services it represents a considerable amount of work. It is bound to be evident to everyone that a nation-wide programme of orthodontic treatment conducted by full-time orthodontists is impossible at least for some time to come.

On the other hand, orthodontics in the general Health Scheme can be carried out not only in the Hospital Dental Service but also in the Local Authority Dental Service and the General Practitioner Service.

It is also possible for a dentist to devote only part of his time to this work. As a rule the child is brought first to the general practitioner or pedodontist, unless the deformity is

of major proportions and self-evident; therefore, a distinct responsibility rests on the dentist in the detection of malocclusion. Also the National Health Service Act places the responsibility on practitioners to provide all the treatment necessary to make their patients, including the child patient, dentally fit, and failing that to find someone who is willing to do so. Many of the orthodontic problems can be solved by the general practitioner, provided that he is of sound understanding and good manual dexterity.

PREVENTIVE ORTHODONTICS

Furthermore, it is the exclusive privilege of all general practitioners to assist in providing a preventive orthodontic service. The importance of this should never be overlooked, and probably no one but the practising orthodontist has any idea of the number of cases that present themselves for treatment which would never have done so if the proper preventive measures had been carried out. The general practitioner on many occasions has a visit from expectant mothers who are then very susceptible to any propaganda which may be put across regarding the dental health, appearance, etc., of her offspring. This is not too early for you to start educating your public—and if you do not tell them, who will? Some two years later you may be introduced to the child, who by this time may be fully equipped with a mouthful of deciduous teeth and from now on you are to a large extent responsible to see that nothing affects the normal growth and development of the masticatory organ. This responsibility and trust should not be treated lightly.

The first thing which you will have to ensure is that your young patient faithfully practises tooth drill, this being a very important part of your programme for the prevention of dental caries.

Next, and pardon me here if I sound like trying to advertise some well-known brand of toothpaste, you must encourage them to visit their dentist at least twice a year so that you may make your routine examination. The restoration of decayed areas in the deciduous teeth must be carried out in order to restore

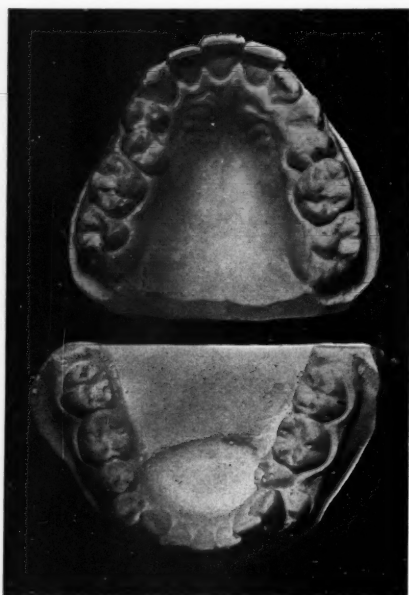


Fig. 1.—Malocclusion resulting from asymmetrical extraction of first premolar.

them to their normal forms and prevent the possible movement of the neighbouring teeth.

The occlusion of the permanent dentition can be influenced to a considerable extent in many cases by the early loss of deciduous teeth.

The early loss of permanent teeth may also have a very serious effect upon the occlusion (Fig. 1). Seldom is a tooth, either of the deciduous or permanent dentition, extracted without affecting the neighbouring teeth and the occlusion. The decision to extract should be taken with reluctance, and, even where you have no alternative, consideration should be given as to how this will influence other teeth in the same or opposite arch.

Having then succeeded in your endeavour to prevent the early extraction of the deciduous teeth, you must now be familiar with the correct ages at which the deciduous teeth should be shed so that you can employ measures for the elimination of prolonged retained teeth. I should at the same time suggest to you that because deciduous teeth are retained unduly, it does not necessarily follow that their extraction is indicated. X-ray examination is necessary.

Before leaving the deciduous dentition I should like to remind you of the fact that the deciduous dentition is liable to suffer from the same forms of malocclusion as we find in the permanent dentition. Such gross forms of the malocclusion as the protruding upper teeth and the overdeveloped mandible can be detected in the deciduous dentition, although they are much more exaggerated in the permanent dentition. It is the responsibility of the dentist to spot such malocclusions and to express his opinion about the condition of a child's mouth to the parent. It is necessary that such opinions should be accurate because they will be accepted as professional statements.

Habits.—In the deciduous dentition we may also see the effects of certain habits. Habits which affect the teeth begin early in life, some of them even before teeth are present. If carried on as the child grows they will affect both deciduous and permanent dentition. It is the prerogative of the general practitioner to detect the ill-effects of those habits.

The most dangerous habits are those in which some object is placed between the teeth, thus causing an undue force to act upon and alter the inclination or position of the teeth.

If it is the thumb which is placed in the mouth it is usually held there with the palmar surface toward the palate and the whole of the thumb in the mouth and the child then begins sucking. This causes considerable displacement of the upper and lower anterior teeth, the uppers tilting labially and the lowers lingually (Fig. 2). It may also cause an open-bite or depression of the incisors.

Of the other digits the forefinger is perhaps the only one with which the young child is

likely to develop a sucking habit. This finger is usually held between the teeth on either right or left side, depending on which hand is used. The malocclusion in this case is the labio version of the upper first and second incisors, canine, and possibly first deciduous molar or first premolar. In this habit the teeth are not the only things to be affected. Examination of the finger will usually show a decided deformity.

Another habit which causes a surprising number of malocclusions is that of atypical

by referring many of those cases to someone who has been able to devote more time to the study of this branch of dental science.

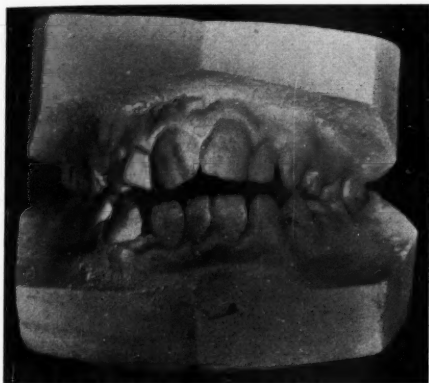


Fig. 2.—Malocclusion due to thumb-sucking.

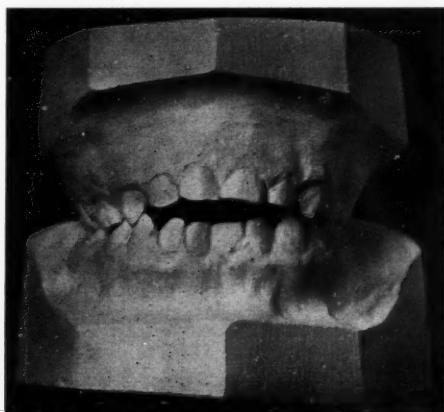


Fig. 3.—Malocclusion caused by the tongue which is forced between upper and lower incisors during swallowing.

Unfortunately it is not always possible for us to perform the ideal treatment on children



Fig. 4.—Tongue forced between premolars and molars during swallowing.

swallow. In this habit the child, during the act of swallowing, instead of placing the tongue against the palate with the tip touching the upper incisors, pushes the tongue forward between the incisal tips of the anterior teeth (Fig. 3) or alternatively spreads the tongue over the occlusal surfaces of the posterior teeth (Fig. 4). Part of the treatment in this case is the correction of this habit by exercises.

A fourth habit which causes ill-effects in both the deciduous and permanent dentition is that of mouth-breathing. The characteristic appearance of such cases is well known. They have a short upper lip, protruding upper anteriors, and an undeveloped mandible.

I am not going to suggest that because you have spotted a malocclusion resulting from a habit or the malrelationship of the arches, you should treat the condition. Here the general practitioner would show sound common sense

and many of them may not visit us until a malocclusion exists.

After the necessary radiographs have been taken and models of the mouth have been prepared we should proceed to make our diagnosis and to plan our treatment. Angle's method is still a very suitable way of classifying a particular malocclusion and should be

thoroughly understood by all general practitioners.

AGE AT WHICH TO COMMENCE ORTHODONTIC TREATMENT

It seems to me that it is still a common practice among some general practitioners to advise parents to wait until the child is 12

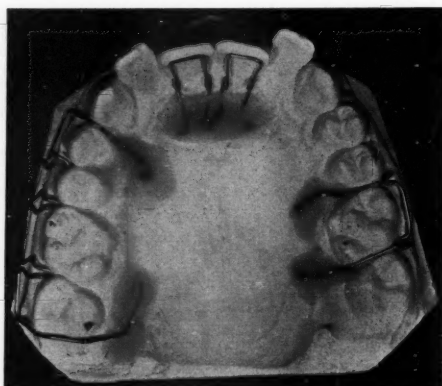


Fig. 5.—The arrowhead continuous clasp; the Adams clasp; and Flapper springs.

years of age. The chronological age of a child is not the determining factor in establishing the correct time for treatment. Some cases of malalignment of individual teeth may be left until all the permanent teeth have erupted, but in cases of malrelationship of the mandible to the maxilla it is advisable to consider treatment immediately it is recognized.

CONSTRUCTION OF APPLIANCES

Either removable or fixed appliances may be used, and both have certain advantages and disadvantages. The removable appliance, which is favoured most by the general practitioner, has the advantage that it can be constructed by the technician and therefore takes up fewer chairside hours. It can also be used as a retention appliance. Its chief disadvantage is that it loses its efficiency through the patient either intentionally or unintentionally dislodging it. The importance of the retention of the appliance should not be overlooked. Many excellent methods of retention have

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been demonstrated, of which the $\frac{3}{4}$ -crib clasp, the Jackson clasp, the arrowhead continuous clasp (Fig. 5) and the Adams clasp (Fig. 5) are probably the most successful. It will be appreciated that good fixation is not only necessary to prevent dislodgement by the patient, but also dislodgement by the action of the other attachments, such as springs. As there will be of necessity limitations to the work carried out by the general practitioner in the field of orthodontics, it can be assumed that most of the work will be concerned with individual tooth movement. For this type of movement such springs as Finger springs and Flapper springs (Fig. 5) of either 0.5-mm. or 0.6-mm. stainless steel wire are used. In cases where two or more anterior teeth require to be moved, such springs as the Apron spring and the Butterfly spring (Fig. 6) are used. The Apron spring is designed to move anteriors lingually and the Butterfly spring used when it is necessary to move them labially. Those

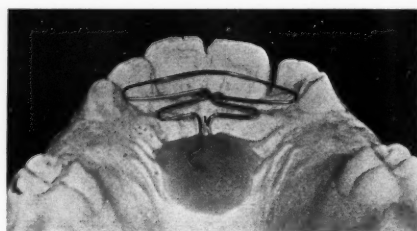


Fig. 6.—The Butterfly spring.

springs are also constructed in either 0.5-mm. or 0.6-mm. stainless steel wire and are intended to act on two, three, or four teeth.

SUMMARY

I hope you will accept this paper as an honest attempt to deal with some orthodontic problems in the general dental practice and to assist the dental practitioner to provide orthodontic treatment for children who might not otherwise receive it. I believe that a knowledge of orthodontics which will enable the dental practitioner to treat simple cases and to recognize the more difficult cases is an essential part of general dental surgery, and that it is an undoubted fact that the diagnosis

and treatment of many cases is a matter solely in the province of a specialist. Much can be done by the understanding dental practitioner in the prevention of malocclusion.

The work of the dental practitioner may be summarized as follows:—

1. Educating the public.
2. Toothbrush drill.
3. Control of dental caries in the deciduous and permanent dentition.

4. A recognition of the dangers of early extraction of deciduous and permanent dentition and the necessity for the provision of retainers.

5. Treatment of simple cases of malalignment.

6. The detection of habits and malrelationship of the arches.

7. Reference to the orthodontic specialist for treatment of cases with marked deformities.

DENTAL RADIOGRAPHY AND DARKROOM PROCEDURE

COMMON FAULTS AND HOW TO AVOID THEM

*From Ilford Limited Department of Radiography and Medical Photography,
Tavistock House North, Tavistock Square, W.C.1.*

6. CARE OF DARKROOM SAFELIGHT

To avoid the inconvenience of handling X-ray-sensitive film in complete darkness special illumination is provided in the form of a darkroom lamp. It consists of a small metal box, with the open front covered by a suitable filter, which houses an electric bulb of low intensity. Darkroom lamps can be obtained in various sizes and shapes, to be suspended from the ceiling or used as a wall fitting, as shown in the illustrations.

The expression "safelight" is used to describe the light emitted from darkroom lamps because the film is less sensitive to their radiation than to white light, but no light is really absolutely "safe". The time the films are exposed to the safelight must be limited, for example to the time taken to unpack them and place them in the tank. The light filter must also be used with the bulb of correct wattage according to the maker's recommendation. For instance, lamps using direct illumination may be limited to bulbs of 15 watts, though 40-watt bulbs would be safe in a lamp-house employing only reflected light and used, of course, at a normal working distance from tanks or bench. A film that has been exposed to X rays is more susceptible to

fog than one which is unexposed because its initial inertia has been overcome. For this

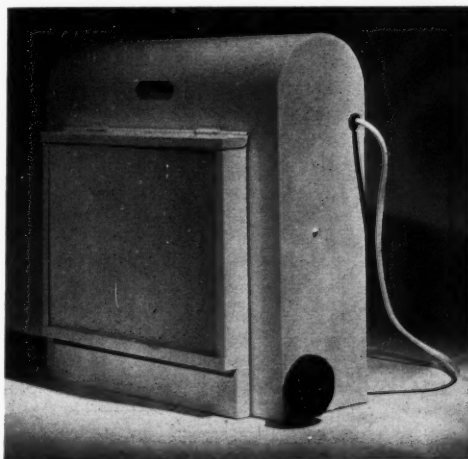


Fig. 1.—Darkroom Lamp No. 4 with safelight (size 8 × 10 in.) held in a hinged frame behind an opal glass panel. By manipulation of the control on the side of the lamp the safelight filter can be angled backwards to enable the opal panel to be used as a viewing lantern for the processed films.

reason the patient's films coming into the darkroom for processing are more likely to

become fogged than one exposed to the safelight straight from the box unused.

Darkroom illumination need not be dull and difficult to work by, provided suitable filters are used in the lamps. The film is not sensitive to the green band of the light spectrum, and

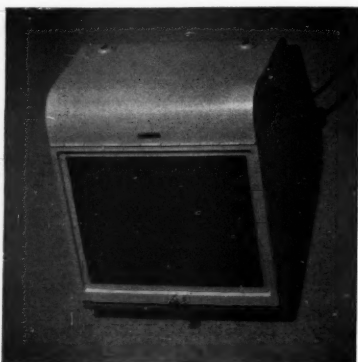


Fig. 2.—Junior Darkroom Lamp with safelight (size 5×7 in.) suitable for a small darkroom where a limited amount of work is done, or as an additional lamp in a larger darkroom.

since the human eye experiences less strain when this colour is used, green filters are recommended for modern X-ray darkrooms. A red filter is safe, of course, but the visibility is poor, and there is no need to grope about in uncomfortable gloom.

Safelights should be kept in good order and the filter should be inspected from time to time to make sure that there is no crack in it. Should this accidentally occur the crack must be covered immediately, as white light will leak through and fog the films.

As has been said, no safelight is absolutely safe for all time, and films should not be left exposed to them too long before development; nor should they be examined close to the safelight for long periods during development or again they will be fogged.

Should films show an unaccountable fog it may be advisable to test the safelight and darkroom for a possible light leak. To test the safelight, first expose a standard dental film for a very short time to the X-ray beam, say $\frac{1}{4}$ sec. at 36 in. distance, and then in the darkroom under normal safelight conditions, half

open the film pack, folding back the lead and black paper, to leave half of the film covered and the other half exposed. Leave the film in this condition for five minutes or the usual time it takes to unpack a set of films of the full mouth ready for the tanks. After this the film should be developed in the usual way, and if the exposed half is denser than the unexposed, actinic light has been reaching it, causing the fog on this exposed portion. Should, however, the fogging be caused through a crack in the door, or some other light leak, the source may be tracked down by sitting in the darkroom for fifteen to twenty minutes with no lights on at all. This length of time is necessary for the eyes

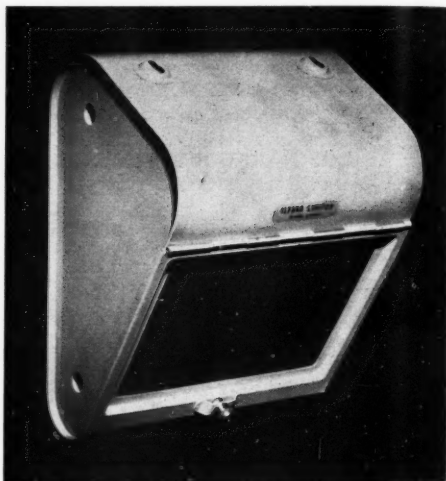


Fig. 3.—Darkroom Lamp No. 8 fitted with safelight (size 8×10 in.).

to become properly prepared and attain visual acuity to detect light of very low intensity.

In the illustrations various types of darkroom lamps are shown. Those shown in Figs. 2 and 3 can be attached to the wall by the back or top of the lamp according to the desired direction of the illumination; in reference, for instance, to the position of the darkroom clock, which must be visible.

All three lamps utilize the safelight Ilford 905.X which is suitable for use with Ilford X-ray dental films.

PARLIAMENTARY NEWS

Questions and Answers

SCHOOL DENTISTS

Mr. Janner (Lab., Leicester N.W.): asked the Minister of Education what her plans were for increasing the number of school dentists.

Mr. Pickthorn (Parly. Sec.) in a written reply, said: My right hon. friend hopes that the salary scales fixed earlier this year by the Dental Whitley Council will attract more dentists to the School Dental Service. (*Th. Nov. 15.*)

DENTAL SERVICES

Squadron Leader Albert Cooper (C., Ilford, South) asked the Minister of Health if he was aware of the serious condition of the Dental Service in this country, more especially the School Dental Service, and if he will have discussions with the British Dental Association on this subject.

Mr. Crookshank, in a written reply, said: The condition of the priority dental service in particular is very much in my mind and in that of my right hon. friend the Minister of Education. (*F., Nov. 16.*)

SCHOOL DENTAL SERVICE

Mr. Remnant (C., Wokingham) asked the Minister of Education how many dentists were required by the School Dental Service to complete its establishment.

Miss Horsbrugh replied: For a complete service of dental inspection and treatment, in which every child is seen annually and all children who require treatment accept and receive it, I estimate that a ratio of at least 1 dentist to 3000 children would be required, and for this purpose the equivalent of an additional 1150 full-time dentists would be needed. To get the service back to its 1948 level some 200 additional school dentists would be needed in England and Wales. (*Th., Nov. 22.*)

Mr. Remnant: Will you take an early opportunity of consulting with the British Dental Association as to the best means of overcoming this shortage?

The Minister: I will certainly consult with various associations the means of overcoming the shortages, which are well known to us all in this House.

Mr. David Griffiths (Lab., Rother Valley) asked the Minister of Education what steps she was taking to improve the School Dental Service.

Miss Horsbrugh replied: I intend to review the whole problem of the School Dental Service. In the meantime I hope that the salary scales fixed earlier this year by the Dental Whitley Council may attract more dentists to the School Dental Service.

Miss Irene Ward (C., Tynemouth) asked: Are you aware that partly the shortage of dentists is because there are not sufficient training facilities for those who want to become dentists, and will you consult with the appropriate department to see whether training facilities can be expanded?

Miss Horsbrugh: I am fully aware there are not enough school dentists in this country. There are not enough dentists in training because there are not enough teachers for dentistry or opportunities for them to learn. (*Th., Nov. 22.*)

ALIEN DOCTORS AND DENTISTS

Mr. Awbery (Lab., Bristol C.) asked the Minister of Health how many foreign dentists and doctors were now domiciled in this country and unable to follow their profession, and what steps he was taking to utilize the services of these professional men.

Mr. Crookshank, in a written reply: I regret that no figures are available. Foreign-trained dentists and doctors can be registered in this country if they can satisfy the criteria laid down by Parliament. The question of reviewing the arrangements applicable to dentists so as to facilitate registration is being considered. (*Th., Nov. 22.*)

In the House of Lords a Bill to amend the law relating to dentists was introduced and read a first time. (*T., Nov. 27.*)

DENTAL BOARD OF THE UNITED KINGDOM

CHAIRMAN'S ADDRESS AT THE OPENING OF THE SIXTY-FIRST SESSION,

NOVEMBER 14, 1951

GENTLEMEN,

It is with very great regret that I have to record the sudden death on Monday night of Colonel E. B. Dowsett, the President of the British Dental Association and one of the most distinguished members of the dental profession. Although he was at no time a member of the Board, he was closely connected with almost every other phase of professional life. A brilliant teacher, an experienced Examiner, and a beloved member of the staff of Guy's Hospital, he had a distinguished career in the Army Medical Service. He was one of the first Fellows in Dental Surgery of the Royal College of Surgeons and a past president of the Odontological Section of the Royal Society of Medicine. For more than twenty years he was Treasurer of the British Dental Association and only relinquished this post to become President.

Most of us knew him well, and we deeply and sincerely mourn the passing of a great dental surgeon and a delightful personality.

This is the first regular session of the Board since our membership has been changed by the quinquennial elections in which, for the sixth time, members of the dental profession have had an opportunity of choosing their representatives under the Act of 1921. On such an occasion it has become usual for the Chairman, after recording the services of retiring members and welcoming newcomers, to pass in review the achievements of the preceding five years and to contemplate the work which lies ahead. I have already, however, in May of this year, given a detailed account of the past activities of the Board, and at present I can only refer to the future in very general terms.

It is a matter of profound regret to us all that two of our colleagues, who have served on the Board for five years, have, for different reasons, not felt able to offer themselves for re-election.

We knew that during the last year of his term of office Mr. Warner had been fighting against ill-health, and we were therefore not unprepared for his decision not to stand for a further term. Mr. Warner was appointed a Treasurer of the Board immediately upon his election in 1946. Since then we have derived much benefit from his acumen and his keen interest in our financial transactions; I am sure that the profession will accord him his share of the credit for so managing our affairs that despite great increases in costs it has so far not proved necessary to raise the registration fees.

Mr. Warner was equally skilful and assiduous in his work on the Educational Grants Committee where he was asked to assume the responsibility of advising the Board on their policy in forming the nucleus of an educational film library. He devoted unstinted time and energy to this project, assessing and appraising films and making arrangements for their purchase, maintenance, and distribution to the dental schools and organizations. We are grateful, too, for the help which he has given the Board as an observer of the experimental scheme for training oral hygienists. By his breadth of outlook and his kindly nature he has won the esteem and affection both of his fellow members and of our staff. Our thoughts go out to him in his retirement and we wish

to this resolute servant of his profession renewed strength to enjoy the leisure he has so richly earned.

Mr. Roper-Hall also came to us in 1946 to represent the graduates and licentiates in England and Wales. He became a member of the Discipline Committee, the Dental Health Education Committee, the Finance Committee, and the Education and Research Committee, of which last he was chairman throughout his term of office. In each of these departments of the Board's work he played his full part; and no less, in this Board Room, both in our deliberations on matters of policy and in weighing the evidence in matters of discipline, we came to attach the highest value to his well-considered and moderate views—the views of a man of principle, intellect, and wide experience. We shall miss him from our counsels and we shall miss his cheerful companionship in our moments of relaxation.

Mr. Roper-Hall's work for the Board was carried out at a time when he held high office in the British Dental Association, including that office which is the highest, most honourable, and perhaps the most onerous to which it was in his colleagues' power to elect him. At the same time he was a member of the new Central Health Services Council and of the original Board of the Faculty of Dental Surgery of the Royal College of Surgeons of England, and he took part in a most important mission to New Zealand. Yet never once has he lost interest in, or neglected, any part of his duties here. Even when he knew that he would have to be in New Zealand at a time when the Board was in session, he prepared his work for the Board most carefully in advance. Truly our debt is not least among the many which the profession owes him, and we can understand, though we deeply regret, his decision that he must relinquish some of these manifold duties.

Our great pleasure that all those of our colleagues who have been exposed to the hazards of re-election have come through them unscathed is heightened by our very real need to benefit, at a time of new departures, from all the understanding of the nature and conduct of the Board's business which can be made available. Perhaps the hazards were for the most part more hypothetical than real. Be that as it may, Mr. Ballard, Mr. Condry, and Mr. Lyons have been returned unopposed by their respective constituencies, while Mr. MacGregor has come back to us from beyond Tweed. We hope that they are as happy to continue their valuable service here as we are to welcome them back.

The two members who have now been chosen by their colleagues in England and Wales to represent them on the Board are both well known in their profession and any detailed introduction would be uncalled for.

Mr. Duckworth was until last year a member of the Council of the British Dental Association and took a prominent part both in negotiating with the Government the terms under which dentists play their part in the National Health Service and in making arrangements for the amalgamation of the three dental organizations. His knowledge and experience of those transactions will be of the utmost value to us and he may soon have yet another important opportunity of placing at the service of

the profession the abilities which have won him such general regard.

Mr. Samson has been for many years a member both of the Representative Board and of the Council of the British Dental Association. Like Mr. Roper-Hall he is a past President of the Association and with him became a member of the first Board of the Faculty of Dental Surgery of the Royal College of Surgeons. He has written extensively on the organization and economics of dentistry and has established a reputation as a courageous and original thinker.

It may be doubted whether the electors could have sent us two men better able to help us at the moment, whenever that may be, at which the profession is to be made self-governing, and we greet them with warmth and gratitude.

We miss the Chief Clerk from the position beneath this dais which she has graced for many years without interruption. I am happy to be able to inform you that

this break with our accustomed order is not likely to be a prolonged one. Miss Baker is, I understand, making good progress after her recent illness and expects to be back with us within a few weeks. We send her our best wishes for a rapid and complete recovery.

We do not yet know whether the chances of this time will permit the introduction into Parliament of the long-awaited Bill to make changes of so much importance to us here. You will not therefore expect me to survey a future which must for the moment remain uncertain; and beyond giving you the assurance that the Officers of the Board have made careful preparation for every contingency which seems likely to arise I do not propose at this time to make any further observations.

Meanwhile, we have before us disciplinary cases which require our attention, and in addition, a number of domestic matters for consideration. It will be well therefore if, with your permission, we may embark upon our programme of business without further delay.

Surgical Extraction: A Critical Survey of Present-day Practice

Beginning with fundamental considerations, the author discusses briefly the question of anaesthesia, asepsis, haemostasis, and physical requirements, and under the latter presents

ABSTRACTS from Other Journals

"The minimum requirements for tooth removal" as follows (Clark and Clark, 1940): (1) A clear, recent X-ray film of the tooth and surrounding tissue. (2) A suitable anaesthetic. (3) A good suction apparatus. (4) Brilliant illumination. (5) A competent assistant. (6) Suitable forceps and elevators. (7) A tray of instruments for the performance of flap operations.

Continuing with the operative technique, the following are described in detail: (1) The incision of the soft tissue. (2) The retraction of the mucoperiosteal flap. (3) The resection of the required amount of bone. (4) The removal of the tooth or root.

A flap should: (1) Have sufficient size to permit access to the operative field. (2) Avoid sharp acute angles. (3) Include the entire thickness of the mucoperiosteum. (4) Have the vertical incisions placed interproximally

when teeth are present to minimize trauma and to facilitate gingival re-attachment. (5) Have the vertical incisions made mesial to the surgical area and one tooth distant, thus automatically providing support of the incised flap margins by a solid plate of bone when sutured into the original position. Four types of incisions are mentioned: (a) one-incision flap, (b) two-incision flap, (c) a three-incision flap, and (d) a semilunar incision flap. For the removal of bone, gouges, chisels, and burs or drills are used either alone or in combination, but with only one proviso—that they must be sharp.

Sterility is to be strictly maintained and surgical judgement, matured with experience, must be practised.

The amount of buccal bone to be removed is determined by the many individual factors presented by the case at hand. Conservation should be observed and in many cases the amount of buccal bone removed need not exceed the amount that nature would resorb physiologically following the extraction. In addition the margins are left smoothly contoured in such a manner as to promote prompt healing. Where indicated, chisel division is the method of choice. The bur technique is most widely accepted for the situations presenting in the maxilla, or where carious teeth or roots require division. A strong arm and a heavy pair of forceps are no longer considered as the prime requisites for operative accomplishment.

Various types of roots as classified by Exner are discussed, together with their removal by elevator technique. For localizing roots a silver or tantalum suture is inserted into the gum overlying the area where the root is supposed to lie, an X-ray is taken, and the root removed from the radiographic findings. Following the surgical removal of teeth the alveolar margins are carefully contoured, the débridement of the operated area is attended to, and the soft tissues are co-aptd with sutures which will remain flexible and clean. Such suturing material is found in woven silk threads which can easily be sterilized and are economical. The needles to be used are small, light, fistula needles of the side-cutting type.

It is current practice to establish a therapeutic blood-level with penicillin pre-operatively and to maintain it for a reasonable post-operative period, especially if infection is present.—JOHNSON, J. H. (1951), *Internat. dent. J.*, 4, 71.

Is it possible to get a Satisfactory Smooth Bevel of the Enamel Margin by Preparation with Cutting Instruments?

It has always been assumed that hand-cutting instruments such as chisels, etc., give a smooth surface to the cavity preparation and enamel margin. In order to check this assumption teeth were prepared ready for filling and the edges of the enamel were cut with sharp chisels and razor blades. The cut surface was then coloured with indian ink, magnified about ten times, and photographed. It showed that there were still large defects in the enamel, but that these could be repaired to a smooth surface by using fine grindstones and sandpaper disks. The investigation showed that the cutting instruments do not give the satisfactory smooth surface which they are generally assumed to do.—BREMER, G. (1951), *Odontologisk Revy.*, 2, 89.

Electrosurgical Gingivoplasty: A Technique

The author lays stress upon the necessity of not only deleting periodontal pockets, but of producing a satisfactory gingival architecture. Successful periodontal therapy is defined as

the acquisition of gingival tissue which, with proper home care, will maintain itself in function. Gingivoplasty is the operative procedure by which this object is achieved.

A technique for performing gingivoplasty by electrosurgery using a bipolar electrode is described, and due attention drawn to the precautions necessary. The advantages of electrosurgery are listed as being:—

1. Better vision due to the sealing of the vessels.
2. No pressure is necessary—an aid in removing unattached tissue.
3. The desired bevels can be made more easily.
4. Very thin sections can be removed—a difficult task with a knife.
5. Greater accessibility due to the size and shape of the electrodes.

The paper is illustrated by four case reports, there being four very good close-up photographs of each case.—SUGARMAN, MARVIN M. (1951), *J. Periodont.*, 22, 156.

The Role of the Blood-clot in Periodontal Treatment

The value of the blood-clot and methods for preserving it intact and in place are discussed. Attention is drawn to the shrinkage which occurs in the clot, so producing a tightening of the tissues around the necks of the teeth and a reduction in pocket depth. The value of antibodies and other protective substances in the serum extruded from the clot, as an aid in defending the wound against infection, is also noted. Without an undisturbed blood-clot there is no chance whatsoever of obtaining any degree of reattachment of the periodontal tissues to the roots of the teeth. Failure to protect the clot allows it literally to be soaked loose or become infected by bacteria from the saliva.

Methods of protecting the blood-clot are a periodontal varnish, wax, adhesive tin foil, or the surgical pack. The formula of the recommended varnish is: gum copal, 16-0; gum mastic, 16-0; tincture of myrrh, 20-0; ether, 20-0; and collodion, 40-0. The area to be painted is dried thoroughly and the varnish applied quickly with a cotton swab. One

minute is allowed for drying and then the area is gently flooded with water, which sets the varnish. After two days the old varnish should be removed and a new coat applied. The eating of soft or liquid foods and total abstinence is necessary whilst the varnish is being used. After four or five days the clot is firmly attached and organized. This varnish may also be used after a flap operation with or without a suture, but the danger of the

varnish getting on to the curretted surfaces is noted. Should this occur the condition of separate buccal and lingual papillae is perpetuated.

The author recommends the renewal of surgical packs at weekly intervals until such time as the underlying granulation tissue has become organized into naturally coloured tissue.—COLLINGS, C. KENNETH (1951), *J. Periodont.*, 22, 171.

BOOK REVIEW

ORAL REHABILITATION. Complete Oclusal Reconstruction; Treatment of Dental Deformities and Related Subjects; The Closed Bite. By JEROME M. SCHWEITZER, B.S., D.D.S., New York. $6\frac{3}{4} \times 9\frac{3}{4}$ in. Pp. 1161, with 1157 illustrations. 1951. London: Henry Kimpton. 140s.

AFTER reading this book on what may be termed the true approach to conservative dentistry, it is sad indeed that it is not possible to agree with the author when he states that, "To-day the art of mouth rehabilitation by means of complete occlusal reconstruction has become almost a routine procedure". Unfortunately far too much oral rehabilitation in this country consists of complete extractions and the provision of full upper and lower dentures. The term "oral rehabilitation" means the reconstruction of the dental mechanism by conservative techniques so that the relation between the new-formed occlusal plane and the movements of the mandible and the temporomandibular joint are correctly co-ordinated. An essential prelude to this treatment is a complete understanding of the parts involved. The author deals in exact and complete detail with this theme. He takes the temporomandibular joint and discusses it from every angle: its anatomy, relationships, function, and on to all its various complicated dystrophies and diseases. It is so fully written that one is apt to get lost in a welter of names and controversial theories. From an understanding of the temporomandibular joint the author passes to the whole question of bite analysis in relation to

function. Tooth form, arch form, and occlusal patterns are discussed in relation to the function of the joint, and finally the full treatment for oral rehabilitation is gone into step by step.

The picture the author has in front of himself all the time is the "whole". He is not content with individual restorations; something greater is needed, and it stands to his credit that he never deviates from this chosen path. However, the book at times tends to become a little overbearing. It would probably appeal more if it was a little shorter. But is this because the subject is still controversial? How accurately does an anatomical articulation record the movements of the temporomandibular joint? Does the condyle move on a hinge or does it glide from the rest position to the position of occlusion? These are two fundamental questions which the author attempts to answer.

It must be admitted that this monumental work is not only beyond the student, it is probably beyond the average general practitioner—to say nothing of the national health scheme, which will always stop this art becoming "a routine procedure", for it is expensive treatment. Nevertheless it is a book that should be read by every member of the profession, for only then will the vast scope of dentistry be realized. It will bring an added interest to the chairside and an understanding of the many problems confronting the dentist and the patient. This is conservative dentistry in its truest aspect, and the author is to be congratulated on his fine work. N. L. W.

THE PROCEEDINGS OF THE BRITISH SOCIETY OF PERIODONTOLOGY

President: S. CRIPPS, L.D.S. R.C.S. Eng.

Hon. Secretary: H. THOMSON, L.D.S. R.F.P.S. Glasg., H.D.D. R.C.S. Edin.
53, Portland Place, London, W.1.

Vol. II, No. 1

December, 1951

PRESIDENTIAL ADDRESS

(Delivered at the commencement of the Third Session on October 19, 1951,
at the Eastman Dental Clinic)

Ladies and Gentlemen,

I have contemplated this presidential address with mixed feelings. I wish that I could leave with you some message which could be translated into a better periodontal service—and yet—after seventeen years of constant striving in this field, I question my ability and presumption to do so.

In the pursuit of greater efficiency in the shortest possible time, we as dental surgeons are always on the *qui vive* for the evolution of some new technique or theory. This alertness is to be commended, for without it the great strides in our profession would be made in vain.

As a student interested in the care of the soft and hard tissues about the teeth, I am firmly convinced that the technique employed plays a secondary role to the state of awareness that tissues other than the teeth exist in the mouth which are subject to morbid change and which are, in fact, as much our responsibility as the filling of a carious tooth. When we are able to examine a mouth clinically and radiographically and find to our surprise that the horizon is not confined to teeth only; when the misconception is corrected that all disturbances of the covering and supporting tissues must be labelled pyorrhœa; and, finally, when the patient suffering from periodontal disease need not await his inevitable fate without help or succour—*then and then only* will we be entitled to profess to the public that we are performing our bounden duty. I should like to appeal to the consciousness and conscience

of the profession rather than pay tribute to the spectacular efficacy of any particular form of treatment, because I feel so strongly that the desire to prevent and treat periodontoclasia must be partnered by an unshakable faith that it can and should be done. The cynic who regards periodontal conditions as incurable is not likely to give his best to his periodontal cases. He is defeated before he starts.

If we have arrived too late in the day to anticipate pathological change, and periodontal disease has occurred, *what* steps must we take to combat this insidious foe?

It is generally conceded that the education of the patient and the regular scaling of the teeth are the basic operations in periodontal practice. Failure to render this service will produce disappointing results despite the employment of other refinements of treatment.

Thorough and meticulous scaling of the teeth cannot as yet be included amongst our many accomplishments in dentistry. There can be very little doubt that the vast majority of dental practitioners are well acquainted with the morbid changes that take place in the parodontium, particularly in the soft tissues, when salivary and serumal deposits are ignored. We may well ask ourselves the obvious question, "What are the underlying causes for the crass indifference to this essential operation?"

Dental schools all over the world, with few exceptions, must accept some responsibility

for having failed to sow the seed of oral prophylaxis. Up to the present, the applicant for a dental degree had to satisfy the examiners that he possessed an adequate knowledge of the various dental requirements. The curriculum did not include a clinical examination in what is known to-day as the department of periodontology. This sin of omission has in no small measure contributed to the prevailing mood of masterly inactivity in this branch of dentistry. The impressionable student who is not asked to prove himself clinically in this field must assume that any subject not worthy of a practical examination is of relative unimportance in his future activities in the surgery. The unfortunate die has been cast. The fact remains that only a small minority of graduates ever recognize the importance of careful and conscientious scaling. These men are rewarded in many ways. The patient is very favourably impressed by the unique experience of having a minimum of 45-60 minutes spent on having his teeth scaled. Even in this day and age, many patients are bewildered by the amount of instrumentation employed in the routine scaling visit. One is too often greeted with the exclamation, "I am accustomed to having my teeth polished with some gritty mixture, but I have never had so much scraping done before". This admission requires no further elaboration. Thorough scaling accompanied by a brief and lucid summary of the story of oral hygiene has on its own singular merit launched many a young practitioner on his way to a successful practice.

Another reason for the lack of enthusiasm for scaling is the fact that it is generally regarded as a tedious and boring routine. Admittedly, it is not the most exciting and sensational experience in dental practice, but much can be done to make it an agreeable and satisfying task. A great deal of the fatigue associated with scaling is traceable to the utter lack of a systematic approach to this operation. The organized worker starts at the most posterior tooth in either jaw and proceeds tooth by tooth until either part of or the entire mouth is completed, depending on the length of the visit and the accumulation of calculus.

We must raise the status of the routine prophylaxis to a higher plane than that which it has attained in the past. It must mean something more to both patient and operator than the mere removal of unsightly stains and the resultant flashing smile. The patient's appreciation of this operation and his reaction to the fee entailed is in direct proportion to the dentist's evaluation of his own contribution. Herein lies the secret of success or failure in this sphere of treatment. It is exactly for this reason that when the momentous occasion arises to determine the fee for a prophylaxis on a national basis, that it is completely inadequate.

The fault, dear Brutus, is not in our stars,
But in ourselves.

Frequently, in conversation with dental colleagues, one listens to the perennial complaint of the dentally-ignorant public. Undoubtedly, a mouth-conscious clientele is highly desirable. What is commonly forgotten in these discussions is the role that should be played by the dental surgeon in the education of his patient. Until now, much of this enlightenment has been gleaned from public health bodies and particularly from commercial advertisements advocating the use of certain dentifrices and toothbrushes. The efforts of the manufacturers of these products should not be deprecated; on the contrary, they should be congratulated on their intelligent approach to the problem of oral hygiene. One or two can be challenged for making sweeping claims for their products, but on the whole they are rendering a good service. However, this type of propaganda cannot be accepted as a substitute for the personal, chairside instruction, where the dentist is ideally situated to unfold some of the magic and the mystery of the teeth and their supporting structures, to teach his patient a satisfactory method to keep them clean and healthy, and finally, to arouse an awareness and interest in his mouth. This ten- to fifteen-minute talk will reap its own reward in the form of greater co-operation and more enduring results. No dental surgeon, however busy, can afford to omit this important part of the dental programme.

Some men have gone as far as having a mouthbrush for each patient filed away in a cabinet. When the patient returns for his three- or six-monthly visit, his personal brush is produced and he goes through his normal brushing routine. In this way, the dentist can correct any deviation from the original instruction and ultimately perfect an efficient method. Others have their patients bring their brushes with them and a similar check-up is made on their performance. This arrangement has the advantage of checking the condition and type of implement in use. With the exception of the hardened few, most people will hesitate to parade some disreputable product which looks as if it has been put to many uses other than the cleaning of teeth. The salutary result is a new brush.

Along with the mouthbrush instructions, patients are also introduced to the use of woodsticks, silk floss, and daily mouthwashes.

I am always suspicious of the lecturer who outlines his project of oral hygiene and smugly leaves the impression that this educational programme is achieved without effort or failure. Most of us have already discovered that this phase of prevention and treatment can be the most arduous of our many tasks as well as the most frustrating.

Much has yet to be done to counteract the patients' growing impression that the dental profession is not as conversant as it should be in dealing with diseases of the supporting tissues. They are not so easily persuaded to accept the verdict that the only cure lies in the power of the extraction forceps. The ever-recurring case-history where the periodontal patient has complained of the early symptoms heralding periodontal disease, and to have been dismissed with the casual remark that bleeding gums were nothing to worry about, must be regarded as a challenge to our ability to diagnose these incipient conditions and an imputation to our realistic grasp of the entire syndrome.

The young dental graduate or undergraduate should possess an intimate knowledge of all dental tissues. He should be encouraged to investigate all the recognized techniques evolved to eradicate periodontal disease. As time goes on, he will probably find that some

of these will produce better results in his hands than others. The choice of any particular method is relatively unimportant as long as the ultimate goal of returning the tissues to a normal state of health is achieved.

I cherish the fond hope that in the near future all periodontal departments will lay aside their partisan feelings in favour of this or that technique, and give their students a broad, unbiased training in all the approved methods of treatment.

At the present moment outstanding periodontists vie with one another on the choice of treatment of the periodontal pocket. Some advocate conservative therapy only by means of subgingival curettage; others are convinced that surgical excision is the sole answer to this problem. In recent years, electrocoagulation has been proclaimed the most effective means to eliminate the soft tissue walls of the pocket.

I can vividly remember the large-scale introduction of the electrocoagulation machine, invented by Dr. Webb in the thirties. Within a matter of months everybody was buying the magic machine that cured "pyorrhœa". In justice to the manufacturers, and to Dr. Webb, one has to admit that the machine itself was a very efficient one. Unfortunately, men with no training or inkling of the aetiology of periodontal disease were removing wholesale quantities of gingival tissue and congratulating themselves that they had at long last found the solution to the *bête-noire* of dental practice. Patients were greeting one another with a long toothy smile. The vogue thrived for a few years and then retired into a well-deserved oblivion. The machine is still being used by the discriminating operator, and is rendering good service. The moral of this story points to the importance of possessing a working knowledge of the condition rather than the over-employment of any single technique.

Still others believe that chemical cautery and packing are the best methods of dealing with this condition. After trying all these techniques, it is felt that more satisfactory results can be obtained by judicious selection than by concentration on any one method.

I feel that this address would not be complete without mentioning the occlusal factor in

periodontal disease. Although I realize that I may be accused of riding a hobby-horse to death, I so fervently believe that occlusal derangement plays an important part in the aetiology of numerous periodontal conditions, that space and time must be provided for at least a short discussion.

Occlusal equilibration at its best implies something more than the grinding of a sore tooth or the indiscriminate flattening of high cusps. Its purpose is to obtain and maintain a state of equilibrium between the forces of occlusion and the resistance of the periodontal tissues. Selective grinding is selective, and for that reason demands a careful study of the structures involved and a sensible approach to the grinding operation. Refined modern diets which are not conducive to natural tooth wear, and the failure to close the edentulous space, resulting in a drifting of teeth, create a necessity for occlusal adjustment. Here again, consonant with the thought expressed in the early part of the address, the realization that teeth in static or dynamic contact can exert forces injurious to the underlying tissues, will make the operator occlusion-conscious. If this can be achieved, the study, choice, and application of existing techniques will follow automatically. We have been repeatedly warned of the dangers of over-grinding. Admittedly, the enthusiast who has precipitated himself into this work without adequate preparation may find himself in deep water. For that matter, most dental operations are fraught with some danger when they are done with insufficient knowledge and training.

Contrary to general opinion, occlusal adjustment is not the monopoly of the specialist. Practically every move of the general practitioner from the making of a complicated, partial denture to the insertion of the humble amalgam must recognize the importance of a balanced occlusion and articulation to ensure the comfort and the correct function of any restoration. The conscientious operator will not be satisfied with casual contact; he will insist upon simultaneous contact in centric as well as equal apposition throughout the lateral slides in excursive relationships. He will not attempt the impossible by grinding the

anterior teeth of a completely-closed bite in order to relieve undue stress and strain, realizing at a glance that the grindstone can do very little to improve the occlusion.

On the restorative side, the bridging of the edentulous space by a fixed appliance now entails an additional step in planning its construction. I was taught to prepare two adequate abutments which would stand up to normal wear and tear and to make a pontic, which would satisfy the cosmetic demands of the patient. The analysis of the latter's buccolingual width—whether it should be as wide as the tooth that it replaced—or the assessment of the degree of occlusion its antagonist was capable of sustaining, was not part of the teaching curriculum. If for example, a lower first molar had been extracted many years ago, permitting an extrusion of the antagonizing molar, some modification would have to be considered in remaking occlusal contact with this tooth. Complete normal contact with an unemployed tooth, the supporting structures of which are possibly suffering from a disuse atrophy, could be risky dentistry.

In the field of complete artificial dentures, the occlusion can either (if you will permit the use of the vernacular) make or break the case. Leading prosthodontists have demonstrated most conclusively that a balanced occlusion transferred from an adjustable, anatomical articulator will produce functioning dentures even when handicapped by the poorest of impressions. Techniques that disregard the lateral and protrusive slides and rely on a haphazard centric contact restrict the patient's mastication to a chop stroke. Any lateral migration can be ventured at one's own peril but may be attended by complete or partial dislodgement of one or both dentures.

These are but a few illustrations stressing the significance of occlusion in dental treatment. Let there be no mistake about it—the growing recognition of the occlusal factor in dentistry is not a passing fad; it is here to stay, alongside other accepted forms of treatment.

How seriously is the question of periodontal disorder as a possible focus of infection being taken by the dental and medical professions? Although both have conceded that periapical

infection may be a definite threat to the general health of the patient, there is considerable hesitation in accepting the pathological periodontal pocket as a focal point of infection. These pockets, unbeknown to the patient, harbour myriads of bacteria, and as the epithelial lining of the pocket is usually not intact, these bacteria and their toxins can find their way into the general circulation via the connective tissue and the thin-walled capillaries of the gingiva. Bacteriological experiments have clearly demonstrated the presence of transient bacteriæmias.

Miller goes so far as to say that infected periodontal pockets are much more dangerous factors in producing focal infection diseases than periapical areas. He lists the following reasons to support his statement:—

1. A much greater zone is involved than in a periapical abscess, considering the total surface area of the walls of all the pockets. It can be safely stated that at least twenty times the absorption surface is involved in an average case of periodontal disease than in a well-developed chronic periapical abscess.

2. Absorption from the gingival sulcus is more rapid since the blood- and lymph-supply to the gingivæ is much greater than to the periapical area in bone, especially when the latter is surrounded by even a slight degree of condensation or encapsulation.

3. Resistance to bacterial growth is lower in the gingival sulcus than anywhere else in the oral cavity because of food accumulation and stagnation.

I suppose all of us have been told at one time or another by a grateful patient that he is feeling so much better physically after periodontal treatment has been completed. In spite of the lack of painful symptoms, because the condition is so chronic, there must be some tie-up between this form of mouth infection and the health of the patient.

In the light of all this, prophylactic measures become imperative prior to surgical intervention, be it gingivectomy or the extraction of teeth.

As the incoming president, I would like to labour you with a few suggestions:—

To develop a group of younger men who will carry on the tradition of the Society, by encouraging the writing and reading of papers.

To form a nucleus of workers who would undertake an investigation or study on some important aspect of periodontal disease.

To elaborate on the existing programme of clinical demonstrations in the form of practical study-groups led by men who have spent many years perfecting their techniques. The personal and informal atmosphere of a study-group demonstration is very effective and has much to recommend it. The numbers would have to be restricted, but these meetings could be repeated annually if demanded.

By this expedient, and along with the current papers and the annual clinical meeting, much could be done to share the experience and the knowledge of the membership.

As the members are spread throughout the country, and in view of other mitigating circumstances, the one- or two-nightly demonstrations would have a greater chance of success than the more protracted theoretical undertakings. Of course, there is no reason why one or two intimate groups should not be formed to meet and study any single problem.

Ladies and Gentlemen, this address is not meant to be a recital of high-sounding words and higher-sounding deeds. These fundamental operations which I have mentioned are the keystones of good practice. Without them, we can muddle through; with them, we can feel with some confidence that we are rendering a fuller service to the patient—thus enhancing the status of the dentist.

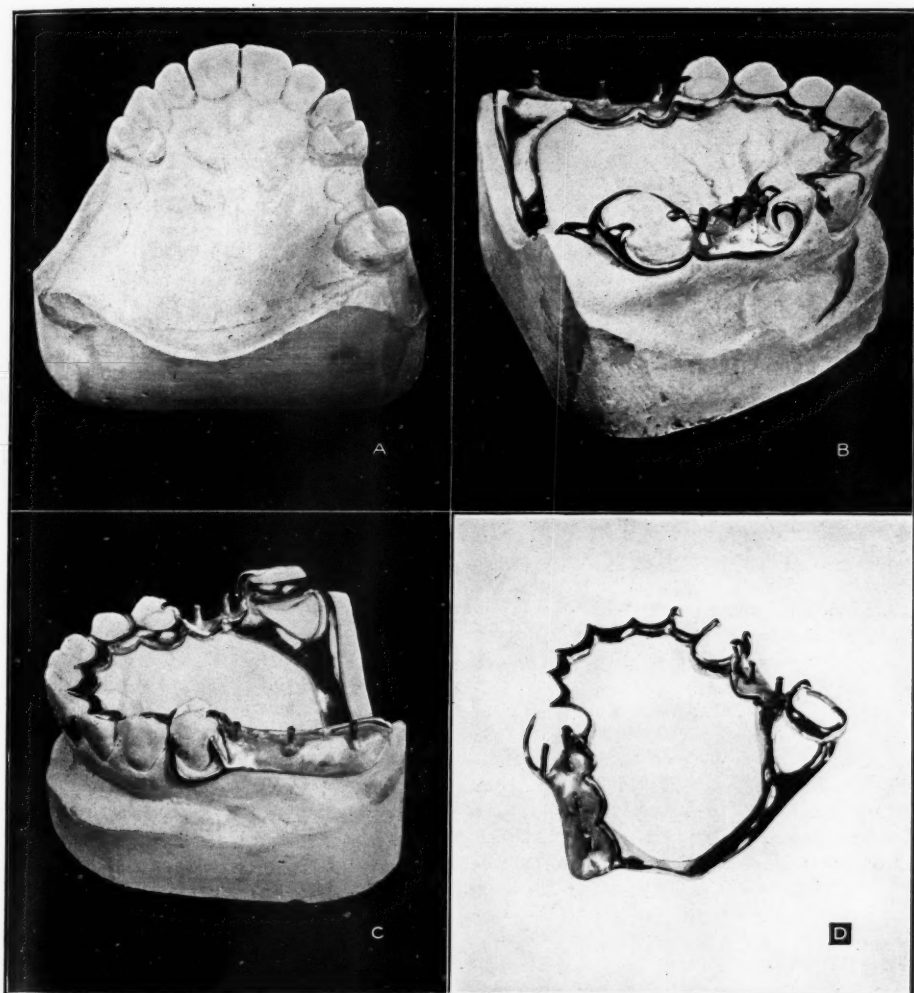
The function of this newly-formed body is to advance the study and practice of periodontology, to which I should like to add the infusion of a missionary spirit in our society to swell the ranks of those fighting the spread of periodontal disease.

To misquote an ancient wit:—

The points I've tried to make to-night,
To some may seem a little trite,
And if I chanced to fall below
Demosthenes or Cicero
Don't view my discourse with a critic's eye
But pass the imperfections by,
Large streams from little fountains flow,
Tall oaks from little acorns grow.

PARTIAL DENTURE CONSTRUCTION PROBLEMS

CHART No. 3.



Case requiring restoration of 765 56 with no distal abutment tooth on right-hand side. Designed as follows: (1) $\overline{5}$ retentive U-bar clasp with occlusal rest and reciprocated by continuous clasp. (2) $\overline{5}$ retentive C-bar clasp with rest and reciprocation as for $\overline{5}$. (3) $\overline{7}$ circumferential clasp with two occlusal rests. (4) $\overline{3}$ mesiodistal clasp. (5) Palatal bar placed as far distally as possible. (6) Continuous clasp on incisor teeth to provide stability and indirect retention. The maximum palatal arch is reserved for the tongue. The skeleton is gingival-free, resting on the cingula areas of the incisors.

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OFFICIAL SUPPLEMENT OF THE
**SURGICAL INSTRUMENT MANUFACTURERS'
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No. 9

December, 1951

Editorial Committee: MR. C. M. BOOTH; MR. H. J. POTTER, F.I.B.S.T.

EDITORIAL

THE Dental Exhibition of 1951 is now behind us. Those of us who were able to attend will recall some profit and pleasure as a result of having attended—it may be that you met a colleague or acquaintance of many years ago; certainly you were warmly welcomed by the representative for your area.

From the laboratory angle, was this Exhibition a success? What did we expect to see? What did we hope to see! What in fact did we see? Standing with two colleagues on the steps of the little balcony in the New Hall and looking down on the panorama stretched below, one of them expressed his reactions by remarking: "It is the same old Exhibition, but with the dust sheets removed".

We felt that the manufacturers are still catering primarily for the surgery and not nearly enough for the laboratory, and in particular for the Professional Laboratory. On one stand, however, it was extremely gratifying to see exhibits of a high standard which were produced by members of S.I.M.A. The members concerned may be justly proud of their work and should never find difficulty in selling their skill for reasonable reward.

In the Old Hall some of our colleagues were being constructively critical of the demonstrations. It is to be regretted that so few laboratory gadgets were to be seen, although it was pleasing to note that the "Brazil

Minor", a piece of equipment recently introduced to the profession by our feature "Is this what you are looking for?", was being demonstrated by one of the leading houses. From our point of view it is a pity that some long-established firms who are outside the Dental Traders Association were not represented, for many of them market excellent aids for the surgery and, of more particular interest to us, some splendid equipment for the technician.

CAN YOU BELIEVE IT?

A laboratory proprietor was receiving complaints, from one customer only, about his bites being unsatisfactory. As this was an isolated complaint the laboratory proprietor visited the customer concerned in order to examine the problem. Fortunately, at the time of this visit, the customer had a patient waiting whose bite had to be taken, so he was invited to watch the procedure.

You can imagine the laboratory proprietor's amazement when the dentist poured hot water into a bowl and immediately submerged the whole bite, holding it under the hot water for a few minutes before introducing it into the mouth!

One wonders what procedure the dentist followed prior to having his bites made by a laboratory.

A SHORT HISTORY OF THE ARTICULATOR

Lecture given by Mr. F. E. Martin, at the S.I.M.A. Annual Conference, Feb. 10, 1951

IN presenting this Lecture I would first of all like to make it clear that this is not a study on practical anatomical articulation, but an attempt to trace the history of the articulator through the years, and to present the subject to you from the purely academic angle.

Most of the interest in this subject centres on the early attempts to reproduce the movements of the mandible in the mechanical form and to make a set of dentures in balanced occlusion. We must, therefore, first of all refresh our memories of the pioneers in dentistry who spent not only their money, but in many instances the better part of their lives, in the study of this absorbing subject. It is only in recent years that we have been able to appreciate that the enormous amount of work handed down to us has enabled the modern anatomical articulator to become the precision instrument now at our disposal.

Originally it appears that the correct movements of the mandible were either ignored, or not sufficiently understood to employ them in relation to making a set of artificial teeth. This is illustrated by the enormous number of bone dentures that were made on quite a flat plane, the correct height of the bite being completely overlooked.

Now it is fairly common knowledge that the first articulator, or "occludor" as it was called, was made from plaster-of-Paris. In 1805 Dr. J. G. Gariot was credited as the originator of this plaster articulator, which provided purely and simply an opening and closing movement, the lower model being mounted in a block of plaster extending about 3 in. to the back, in which was cut a notch or key, and the upper model being placed in position with the bite, and a plaster top cast as a whole, a new occludor being made for each case.

The earliest patented articulator would appear to be that made by Dr. B. J. Evans in 1840. This articulator was the first to allow for the lateral movement of the mandible. No doubt, during the interim period of thirty-five years between Gariot and Evans many types of

articulator were produced and placed on the market, and were mainly in the form of hinges and wired springs, etc., but it is impossible to dwell upon these as we are here attempting to consider rather a series of stepping stones of definite theories and advancements which now go to form the modern theory of balanced occlusion. The Evans articulator is very interesting inasmuch as the upper part was a fixture and the mandibular portion movable, with holes and guide pins in the part representing the ramus, which could be altered in length to about five positions. The lower was supported by a spring, the height of bite being adjusted by a screw-thread passing through the upper part and impinging on the rear of the lower plane. In many respects this articulator closely resembles others that have appeared in later years.

Nearly twenty years went by before Dr. Bonwill, in 1858, introduced his anatomical articulator, or "antagonizer" as he called it, at the same time presenting his theory of the equilateral triangular relation, calling attention to the three-point contact theory of occlusion. The articulator he designed in this year showed no tremendous advance in principle as to movement over the Evans articulator, but was simpler and easier to handle; the results, however, were not quite what he claimed for this instrument, because of the ignoring of the variation of pitch of the condyle paths and an inaccurate method of mounting the casts on the articulator, but there is no doubt that his work was a great inspiration to other workers in this field.

A name that must not be forgotten is that of Dr. E. T. Starr, who, in 1868, produced an articulator giving lateral movements of horizontal condyle paths, and at the same time published an historical treatise on the movements of the mandible.

From this date we now approach the names which are perhaps better known in the annals of the scientific theory of the setting-up of teeth. Dr. T. L. Gilmer, in 1882, was the

first to suggest the measurement of the distance from the condyles to the middle of the upper jaw. This date should be remembered, for apparently Dr. Gilmer's suggestion caused deep thought amongst the other pioneers as being a very great development in the study of the movement of the condylar paths.

Dr. Richmond Hayes, in 1889, embodied these principles in an articulator which he patented, and made provision for a downward as well as a forward movement of the condyle; these paths, however, were too steeply inclined and no provision was made for adjusting them.

Drs. Bowditch and Luce, of Harvard, in 1889, reported findings relative to condylar movements; but their conclusions were not widely publicized and it remained for Dr. W. Walker, in 1896, to call the attention of the profession to some of the more intricate factors relative to the temporomandibular articulation.

The first evidence of the face bow appeared in an apparatus produced in 1894 by Dr. C. E. Bixby; this consisted of a plane line articulator, which he apparently thought was good enough, but to which was added a removable arm with which he contended he could take the bite in a central position and convey to his articulator. This was no doubt the forerunner of the face bow as we know it to-day.

Dr. W. E. Walker, in 1895, produced an instrument which he called his "facial clinometer", with means of reproducing the varying angles of the condyles, adjustable paths, and variable rotation centre for each individual case, but again, as in many of these earlier efforts, the mounting of the bites was left purely to guesswork. Unfortunately, Dr. Walker's discoveries were not put to practical use for many years, but it is a fact that he was a real pioneer and deserves much of the credit for the theories that are put forward to-day.

We have now arrived at the period when the articulator really begins to take shape. After many years of trial and error, there has now evolved from the plaster casts of Gariot an instrument reasonably easy to handle and incorporating the majority of the advancements of these times.

The next era, or stepping stone, began about 1899, when Drs. Snow and Gritman, of Buffalo,

both produced articulators which incorporated the use of a face bow. They expounded their theories on the use of these, and it became an acknowledged fact that in setting-up a case for balanced occlusion it was necessary to use a face bow in conjunction with an articulator designed for the purpose. Many of these articulators are still in use, as many thousands were produced, and the American dentist, in particular, became "face bow" conscious. All these names that I have mentioned, you will probably notice, are American, but this does not mean that the subject had not been the cause for considerable thought and study both in England and on the Continent. One outstanding achievement was in 1890, when the German, Graf von Spee, called attention to the occlusal planes of the teeth and for the first time combined the plane of the teeth in conjunction with the curve of the condyle.

In England, in 1901, we had Dolamore, Tomes, and Norman Bennett, with their advanced theories of the condyle path and other features. In 1902, Carl Christensen, of Copenhagen, produced a monumental work on the subject and created an articulator which was considered one of the finest instruments of the times. In the same year we had many other famous names—to mention a few, Walker, Parfitt, Constant, Champion, Peckert—all adding to the now growing mass of information which was fast establishing itself into something coherent.

The approach of the third era was heralded by Dr. Gyzi, of Zurich, in 1910. Gyzi should be given credit for discovering many features which to-day are regarded as established facts, i.e., "Gyzi gothic arch", the method of registering the movement at the incisor point in a horizontal plane, and the origin of the incisor point and guide. The articulator he produced was a very advanced instrument and incorporated these principles, including the secondary movement of the condyle described by Norman Bennett. His technique also suggested the use of anatomically designed teeth, and to-day the teachings of Gyzi are generally considered the basis for the study of anatomical articulation.

Since then the problem of the articulator has become highly scientific: Dr. Monson's spherical theory tended to throw much to the winds with his contention of tooth guidance rather than condylar guidance; Dr. Hall's conical theory, the three-dimensional articulator in 1926, and the inverted cusp teeth; R. L. Hanau, designer of scientific articulators and advocate of simplification of the laws of articulation.

Unfortunately, one cannot mention all the types of articulators that have been presented to the profession. Many have appeared to us as weird and wonderful, and others as practical only in the hands of their inventors, but the finest instruments of to-day differ little basically—they all have their individual points, defining the principles and technique of the

designer, and their particular merits are the cause of much profound discussion, and, of course, it is only in this way that further advancement will be made. A final thought for reflection—if the pioneers of anatomical articulation knew that the precision instruments that have been evolved from their researches are considered only luxuries, and that the average patient of to-day is provided with teeth set-up on a plane line hinge, which it was their greatest ambition to eliminate, what would be their reactions?

[The lecturette was illustrated when delivered to the S.I.M.A.]

REFERENCE

SMITH, EARLE S. (1934), "Advancement in Full Denture Construction", *Amer. dent. Ass. J.*, Jan.

CORRESPONDENCE

Mr. R. Cortazzi writes:

"I was interested in the article on 'Formica' for bench coverings and would like to offer the idea that has been successful in my Laboratory.

"Some time ago we had the concrete floor of one of our rooms covered with Bitumen Asphalt by a firm of contractors for a cost of £32 for an area of approximately 275 sq. ft. A variety of colours are available, although black is the cheapest. The success of the floor prompted me to try and cover the plaster bench, which I found quite easy to do.

"First we covered the bench with tarred felt (laid on the wood without nailing down). The asphalt was melted in a very large iron pot on the gas ring. Having laid the felt, a batten of the required thickness ($\frac{1}{4}$ to $\frac{3}{8}$ in.) is fixed, marking off about a yard of the bench. The molten asphalt is poured on to this part of the bench and spread to an even thickness with smooth wooden floats, similar to those used for cement rendering, but made of wood, not metal. French chalk sprinkled over the surface as it hardens, and rubbed in with the wooden floats, gives the asphalt a high polish and makes it very smooth. Continue rubbing until the asphalt is hard, but not necessarily until it is cold, say for ten minutes. My bench

is 17 ft. by 3 ft. and is covered to a depth of about $\frac{1}{4}$ in., and four cakes of asphalt were used.

"I had a little trouble in getting the material as there appears to be something in the nature of a closed shop regarding supplies, but eventually a builder friend obtained some for me.

"We find that the bench stands up to hard use without any signs of damage".

ANNUAL CONFERENCE WEEK-END Feb. 8-9, 1952

The Conference Week-end activities will be centred at the Holborn Restaurant, London, W.C.1, with the following programme:—

Friday, Feb. 8.—Reception, Dinner, and Dance in the Ballroom, from 6 p.m. to 11.30 p.m. Tickets £1 8s. 6d. each. Application for tickets to Mr. C. M. Booth, 26, Palmers-ton Road, Wood Green, N.22. Tel. BOWes Park 3027.

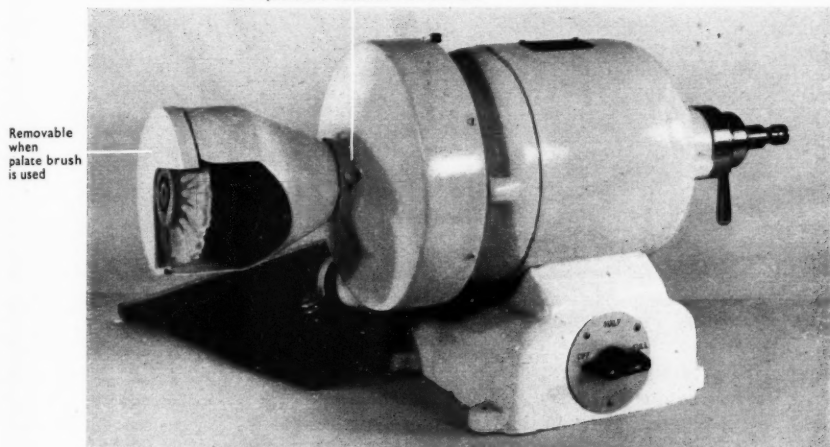
Saturday, Feb. 9.—ANNUAL GENERAL MEETING, 10.30 a.m. EXHIBITION OF DENTAL EQUIPMENT AND APPLIANCES, 2.30 p.m. Admission open to all members of S.I.M.A., and to others by invitations obtainable from members or from Mr. C. M. Booth, as above.

IS THIS WHAT YOU ARE LOOKING FOR?

EVER since the high-speed polishing motor became part of the dental laboratory equipment, one of the most unpleasant features associated with it has been the dust thrown off when using pumice, whitening, rouge, tripoli, or any of the other polishing agents, with the consequent bespattering of the operator's face and the filling of the nostrils with the dust. Small amateurish efforts were

The Automatic Dust Extractor, as seen in the illustration, is an outstanding piece of British dental engineering, strongly and efficiently designed and built to give years of trouble-free service. It comprises an attachment fitted to the lathe with a cone-shaped cowling over the brush. A fan, regulated to the speed of the motor, draws dust from the brush and through into a bag attached to the

Bayonet Socket here allowing margin of adjustment backward or forward



made to relieve this unpleasantness by wearing different kinds of respirators, which themselves proved unpleasant and uncomfortable and were quickly discarded.

This state of affairs was allowed to continue without any device apparently being produced by the dental trade, and those who were more adventuresome were perforce compelled to try large and cumbersome industrial appliances expensive in cost and unwieldy in size.

It was, indeed, most pleasant to find at the recently held Dental Trade Exhibition that at last this problem had been tackled, and on one of the stands was a product which certainly fits the caption "Is this what you are looking for?" It has been designed by a dental technician and produced by Messrs. Cottrell & Co. in the form of a combined polishing lathe and dust extractor.

side of the fan chamber. The bag is quickly removed for emptying by simply unscrewing the metal collar.

The lathe has two speeds, ranging from 1400 r.p.m. on 1st to 2800 r.p.m. on 2nd, and is available for both a.c. and d.c. currents. The a.c. model is of the induction type and because of the absence of commutator and carbon brushes, will not cause interference to radio and television.

The Cottrell Lathe and Automatic Dust Extractor is supplied complete as a unit, whilst the Dust Extractor is also available as a fitting for the Beryl Lathe, and production as an attachment for all makes is going ahead and will be available very soon. It will be most interesting to hear in due course from experienced users in large laboratories how this product answers the problem of dust extraction.

ODDS AND ENDS

TRACKING DOWN THE CAUSE OF HIGH BITE

By D. MARTIN BEAUCHAMP

In the past, if not now, high bites have worried both surgeon and technician. Assuming proper diligence by both, from the data provided by the former the latter should produce appliances that "go in without a touch". Sometimes this desirable result is not

from their mounts by saw cut and knife leverage. Preserve cleanliness of model base by soaping and laying on a piece of tissue paper, flask and process; deflask, leaving the dentures on the models, clean the model bases and denture occlusal surfaces, and place back

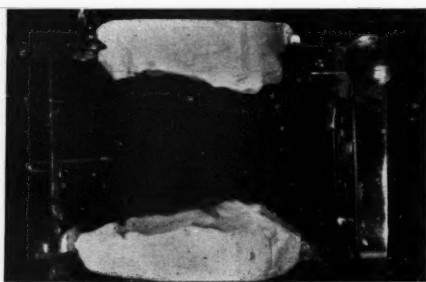


Fig. 1.—Anatomical articulator after detaching models from their base mounts.

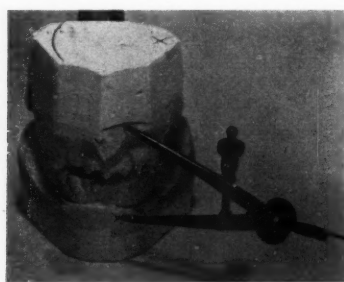


Fig. 2.—Checking the scribe marks on a plane line articulator.

forthcoming, and "as it was quite all right at the try-in", the technician is easily the scapegoat, and it becomes necessary for him to check future work and ascertain whether or not he is really to blame.

For those who have been troubled in this way, yet feel they are not guilty of faulty processing, it is a good thing to try the processed dentures—still on their models—back on the articulator on the plaster mounts, which have been preserved for this purpose, and check for a run of six or so cases. Proceed as follows: When trial dentures have been approved, and are ready for processing, prior to detaching models from the anatomical articulator mounts, make sure the point and foot are contacting (Fig. 1); if using a plane line articulator, set a pair of dividers and scribe marks on the fronts of models, and record the distance with similar marks on the top of the upper mount (Fig. 2); slide models from the articulator, and after a ten-minute steep in cold water to ease separation, detach the models

from their mounts by saw cut and knife leverage. Preserve cleanliness of model base by soaping and laying on a piece of tissue paper, flask and process; deflask, leaving the dentures on the models, clean the model bases and denture occlusal surfaces, and place back

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Assuming satisfactory work by the surgeon, a discrepancy is now revealed between trial and finish, not due to careless bite taken in surgery nor bad processing in laboratory.

Unless a trial denture surface is an exact replica of the finished denture surface, it is not a proper trial, and to this phase, because of the tissue mobility (mobility, not compressibility) I believe high bites can sometimes be traced.

If the trial base plate is not thoroughly adapted to the rugæ, because of this detail deficiency, during the trial it may rise slightly further on a mobile palate than it ought; when this detail-deficient trial plate is passed as satisfactory by the dentist (he cannot be

blamed for this) and is processed on the original model, without fault by the technician, its fitting surface is altered by details in relief, which the trial plate lacked, and when the finished denture is placed in the mouth it cannot rise as high as did the trial denture. The resulting prop or gag is sometimes sufficient for the dentist to call it a high bite, and he resorts to adjusting the bite by grinding the occlusal surfaces.

In former times some surgeons made bite and trial records on rigid cast low fusing metal, vulcanite, or acrylic base plates: this created other snags, was expensive in time and trouble, and hardly practicable then, certainly not now, but the reference confirms that the need for an

accurate, rigid base at the bite and trial stages has long been recognized.

The trial shellac base plate must be of stiff material and always well adapted, so that all model surface details are impressed. When a model surface is very uneven with deep recesses, do not risk damage by pressing overheated base plate against it; steep the model in cold water for a few minutes, drip on a thin layer of wax over the remote parts, and then pressure of the warm premoulded base plate on to the model will coat it with a wax fitting surface; such a trial base plate will keep the mobile tissues in their place, will not rise higher in the mouth than the finished denture, and will make a more accurate trial.

NEWS FROM HEAD OFFICE

Chairmanship of S.I.M.A.—At the last meeting of the Council of Management, Mr. H. Guy Drew retired from the Chair after eighteen years' service in this office. We are assured, however, of a continuation of Mr. Drew's valuable guidance and advice in the capacity of President of S.I.M.A. Mr. G. T. Gamble, of Messrs. Allen & Hanburys Ltd., was elected Chairman of the Association.

Annual General Meeting.—The Annual General Meeting of S.I.M.A. took place on October 12, when Mr. H. Guy Drew was elected President and Mr. W. T. R. Beckett Vice-President of the Association. Following the Chairman's report, which covered a general survey of the Association's activities during the past year, and the presentation of the accounts by the Hon. Treasurer, reports were submitted on behalf of the various Sections. The report of the Dental Section, which was presented by Mr. Emmett, received very favourable comment. It was remarked that the Section was a credit to the Association in the conduct of its affairs and was to be congratulated on the organization of its members on a national scale and the immense amount of work and co-operative effort evident from the report, which might well serve as a lesson to other Sections.

Annual Dinner-Dance.—The Annual Dinner-Dance was held at the Trocadero Restaurant on Friday, October 12, under the Presidency of Mr. H. Guy Drew, when approximately 200 members and guests listened with interest to the remarks of Mr. Wylie McKissock, O.B.E., M.S., F.R.C.S., Mr. Harvey Jackson, F.R.C.S., and Mr. Frankis T. Evans, B.S., who responded to the toast of "The Guests". Dr. W. G. Senior, O.B.E., F.D.S. R.C.S., and Mr. Sidney G. Davis, O.B.E., LL.B., were also present as guests of the Association. Miss Grace Nevern's recital, the dancing, and the opportunities of social intercourse all contributed to a happy and memorable occasion.

New Member.—The following laboratory has been recommended to the Council for election as an affiliated member:

A. Booker, 1-3, Clarence Street, Gloucester.

Changes of Address.—The following members have removed to the addresses noted below:—
Banbury Dental Laboratories, 65a, High Street, Banbury, Oxon.

C. B. Phillimore, 11a, Bruce Grove, Orpington, Kent.

Thompson and Nicholson, 788, Mansfield Road, Woodthorpe, Nottingham.

Westney's Dental Laboratories, 75, Shaftesbury Avenue, Roundhay, Leeds 8.

NEWS FROM THE BRANCHES

West of Scotland Branch.—During November a lecture on photography was given to the Branch by one of its members, Mr. A. Rae, F.I.B.S.T., illustrated by some very fine exhibits of his skill in this field. The evening was much enjoyed by those present, and each one received from Mr. Rae an enlargement of his favourite negative made by the lecturer during the evening.

Croydon Branch.—*Report of the Fourth Annual Demonstration Meeting held at Norbury on October 19, 1951:* Once more by the keenness and co-operation of those people who spent so much of their time and effort in preparing material for their tables and so much ingenuity in condensing the subject matter into interesting ten-minute talks, we of Croydon Branch and our guests had a most interesting and instructive evening.

Arrangements were in the pattern now familiar to so many. The proceedings were opened by the chairman, Mr. W. G. Chambers, who welcomed the demonstrators and guests. The subjects and the styles of the demonstrators were varied, but all were interesting, and it would not be fair to single out any one for special mention; we hope to provide articles on all the items for inclusion in subsequent issues of the Supplement.

After the time allotted for the revisiting of tables and questions had expired, Mr. Emmett, Chairman of the Dental Laboratories Section

of S.I.M.A., closed the meeting with a word of thanks to the demonstrators and to the Branch on behalf of the visitors.

North-eastern Branch.—The North-eastern Branch held the Annual General Meeting at the White Swan Hotel, York, on Saturday, Sept. 29, 1951, presided over by Mr. H. Featherstone. There were sixteen members present. Applications for membership were dealt with, and two more applicants were recommended to be brought before the main committee. The election of officers for the ensuing year was as follows:—

Chairman: Mr. H. E. Gill, 102, Percy Street, Newcastle-on-Tyne.

Vice-Chairman: Mr. Rudkin, 230, St. Phillips Road, Sheffield 3.

Treasurer and Secretary: Mr. B. H. Shaw, 100, Morley Street, Bradford.

Regional Representative: Mr. W. Pearson, 17, High Ousegate, York.

Proposed South-western Counties Branch.—The monthly meeting was held on Nov. 6, at Newton Abbot, and was fairly well attended, although it is hoped that all members will make an effort to attend regularly. Those who were able to attend the Dental Exhibition gave their views and discussed the newer materials and techniques. It was decided to arrange for Table Demonstrations and Lectures at future meetings.

S.I.M.A. (DENTAL LABORATORIES SECTION) DIARY

South Wales and Monmouthshire Branch (*Secretary:* Mr. R. Mather, F.I.B.S.T., 16, Clodien Avenue, Cardiff).—Meetings, Dec. 6, and Jan. 3, 1952, at the Royal Hotel, Cardiff.

West of Scotland Branch (*Secretary:* Mr. J. S. Fountain, F.I.B.S.T., 21, Circus Drive, Glasgow E.1).—Meeting, Dec. 17, at the Bath Hotel, Glasgow.

London Regional Branch (*Secretary:* Mr. R. Foale, F.I.B.S.T., 899, Finchley Road, N.W.11).—Annual General Meeting, Jan. 10, 1952, at 6, Holborn Viaduct, E.C.1.

North-eastern Branch (*Secretary:* Mr. B. H. Shaw, 100, Morley Street, Bradford, Yorks).—Meeting, Jan. 12, 1952, at the White Swan Hotel, York.

Croydon Branch (*Secretary:* Mr. H. J. Nowers, F.I.B.S.T., 86, Croydon Road, Beddington, Croydon).—Meeting, Jan. 18, 1952, at the Six Bells, Croydon.

Proposed South-western Counties Branch (*Secretary:* Mr. W. H. Horn, 10, Criterion Place, Exmouth).—Meeting, Jan. 1, 1952, at the Commercial Hotel, Newton Abbot, Devon.